REPORT OF

THE ALBERTA HIGH SPEED RAIL REVIEW COMMITTEE

TO

THE HONOURABLE LARRY SHABEN

MINISTER OF ECONOMIC DEVELOPMENT
AND TRADE

June, 1986

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REPORT OF THE HIGH SPEED RAIL REVIEW COMMITTEE

1. INTRODUCTION

A High Speed Rail Review Committee was created by Alberta Economic Development in December of 1985. Its terms of reference had as its objective the following:

"To review, assess and report on the feasibility and viability of an innovative joint-venture between the private sector and government to provide, between Calgary and Edmonton, a high-speed rail service."

The members of the Committee were:

Mr. David Dover, Calgary - Co-Chairman

Mr. Gerald E. Pearson, Edmonton - Co-Chairman

Mr. Robert G. Brawn, Calgary

Mr. Don Carlson, Edmonton

Mr. Donald Cross, Calgary

Mr. James F. Hole, Edmonton

Mr. Gordon Pearce, Calgary

Mr. Aaron Shtabsky, Edmonton

Their report to the minister follows.

2. CONCLUSIONS AND RECOMMENDATIONS

2.1 On the basis of currently available studies which it has reviewed and developed, this Committee recommends that the Government of Alberta does not proceed with the development of a High Speed Rail link between Calgary and Edmonton.

2.2 The reason for this decision is that the project involves major risks and financial commitments for which the Committee, under present circumstances, does not find sufficient benefits for Albertans.

2.3 The circumstances which influenced the Committee's recommendations should be monitored, and to accomplish this, and to ensure the involvement of the private sector, which the Committee believes is vital, certain criteria should be followed. These are set out on Pages 3 and 4.

Following are the criteria which the Committee believes should be followed by the Government of Alberta to monitor the circumstances upon which the Committee's recommendations are based.

1. Strike a standing Committee with a limited life span from the private sector which will be responsible to the Cabinet.

2. Its terms of reference would be to monitor the assessment criteria upon which the High Speed Rail Review Committee based its recommendations. These include:

    (a) continuing review of trends in capital and operating costs of high speed rail systems, developments in rail technology, and developments in competing technology.

    (b) continuing review of other factors which might affect the viability of the project. These should include the performance of the economy, economic trends and population growth rates, and any changes to transportation services and terminal facilities. From this will come information on ridership which could be attracted to the system. This is particularly important because the level of ridership is crucial to the economics of the project. (1)

3. It should also monitor the concept that the corridor required for a high speed passenger rail link could provide for a number of other possible uses such as Rights-of-Way for: power and other overhead utilities; buried fibre optic and other communications cables; water, sewage, hydrocarbon and other pipelines.

Should the Government of Alberta decide in the future to proceed on the basis of new information, the following procedures would be required to help maximize any benefits to Alberta. Any such decision should make substantial private sector contribution to capital and risk-sharing a pre-condition of the project.

1. The Province should create and fund a wholly owned Corporation with directors from government and the private sector.

2. The Corporation charter shall give exclusive rights to develop a high speed rail link between Calgary and Edmonton and compatible uses within the corridor.

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(1) Although the strongest sensitivity impact is capital cost, this is in part offset by a higher level of confidence in capital cost estimates than in ridership projections. It should also be noted that capital needs are in the years preceding any revenue. This too tends to over-emphasize the impact of capital costs.

3. The Corporation should identify a competent consortium prepared to assume the role of private developer-operator which would undertake the Organization and Preliminary Design Phase of the project. This Phase would include developing the details whereby the consortium would be granted franchise rights. During this Phase, the consortium would develop a marketing strategy and plan, and conduct marketing studies to ensure maximum economically viable penetration of the demand for inter-city travel. This would include determination of whether the proper destination points should be suburban or inner-city. The decision would also be made with respect to the need to acquire or otherwise protect Rights-of-Way at this time.

4. The costs of this Organization and Preliminary Design Phase of the project might approach several million dollars and should be borne by the consortium and would constitute part of their investment. If no agreement is reached to proceed, or the project is abandoned, the Government of Alberta should be prepared to pay a major portion of this cost.

3. SUMMARY

3.1 Capital Costs

The current estimate of capital costs, expressed in first quarter 1986 dollars is $1,291. million. This is made up of $1,109. million for infrastructure and infrastructure improvements plus $182. million for rolling stock and other operating capital requirements. Details are given in Tables 4.1 and 4.2 on pages 9 and 11.

A review of earlier cost estimates found them to have been competently prepared although there is a difference of opinion with respect to grading and drainage which can only be resolved when some engineering is done. The Committee also questions the assumption that a Calgary station would be provided by others, and has added costs for this item. It also believes that an allowance for traffic access and parking structures at Calgary and Edmonton stations should be added. These items account for most of the increase in projected costs.

With respect to rolling stock and other operating capital requirements, (maintenance and operating buildings and equipment) the Committee believes that these will amount to $182 million. This is substantially higher than the previous estimates.

With respect to the rolling stock proper, prices developed earlier have been escalated because of the current weakness of the Canadian dollar. The current cost estimate of the rolling stock also reflects an opinion that additional standby units are required because of the small size of the fleet and its isolation from similar train sets. Also, there are added costs due to the development of second generation technology. It is believed that this escalation would apply to all the alternative suppliers. Rolling stock is estimated to cost $154 million.

In the absence of system analysis and design, the Committee accepts as reasonable the earlier estimates of $28 million for other operating capital requirements, bringing the total for both to $182 million.

3.2 Operating Costs

There is little applicable experience throughout the world with respect to operating costs of new high speed rail systems. The Japanese exposure is based on older technology, is applicable to a very highly utilized system, and is labour intensive. The French TGV installation is specific only to the Paris-Lyon service and is closely linked to French national railroad policies and experience.

Reliable operating costs will be able to be projected for the Calgary-Edmonton corridor only after specific technology for the system has been selected and preliminary designs determined.

Earlier studies developed operating costs in some detail based upon Canadian rail experience. In the absence of anything better or more specific, these have been used for the purposes of calculating required cash flows and revenues. The number used is $30 million per year.

The Committee believes, however, that operating costs may have been understated. Had the cost/benefit analysis been sufficiently favourable to permit recommendation of the project, additional economic studies would have been undertaken to identify the negative impact of higher operating costs.

3.3 Revenues

Revenues will be generated almost exclusively from customers travelling between the two cities either on business or for personal reasons. The majority of the trips will be generated by business travellers.

The Calgary-Edmonton corridor is unique to North America in that a very large proportion of corridor travellers currently use public transportation. Therefore, it is likely that a fast efficient public transport system such as a high speed rail link will attract users, and if the system is competitive, will divert passengers from other modes.

The numbers of passengers required to support the system is dependent upon a large number of variables. However, about 1 to 1.2 million one way trips may be the threshold requirement. It is unlikely that such a ridership can be captured until the late 1990's at the earliest.

The Rights-of-Way required to build the railroad system could be designed to be a safe and secure location for installation of communications cables, pipes, and transmission cables. These could be installed without interference to the railroad operation. The value of these services to others however, is likely to be relatively modest, and is most likely to be in the form of a one time contribution which will not effectively reduce capital costs.

Another important potential source of revenue is terminal to terminal parcel service both for individuals and on a wholesale basis. The consumer parcel revenue has been assumed at about 4% of passenger revenue. This may amount to about $1.5 million per year in the early years. The wholesale parcel revenue has been calculated to be $1.8 million per year.

3.4 Cost/Benefit Analysis

A cost/benefit analysis of the project was undertaken for the Committee. This differed from the less complete analysis undertaken earlier by the Department of Economic Development which did not, for example, consider the net benefits or costs arising from the alternative modes of transport (rail compared with air, bus and auto). The summary results of this analysis are shown in Table 4.3, Page 12.

This table shows the total net cost taking all quantifiable factors into account including the gains from additional employment created by the project. The net cost is seen to be $668 million in 1986 dollars of present worth. The major part of this is seen to come from the subsidy required to induce travellers to abandon existing modes of transport. It represents the contribution to project costs which the Government of Alberta must meet because the customers of the railway do not value the service it provides highly enough to pay the full cost themselves.

The results are shown in a different manner in Table 4.4 on Page 13, which shows the subsidy (in terms of the actual monies which would have to be appropriated over the construction phase) as a percentage of the total cost of the project and in terms of dollars per year of employment up to the end of the construction phase. The table shows that appropriations of $859 million would be required if the project were to be in service by 1992, and that this would amount to $62,000 per man year of direct employment. While these subsidy costs diminish as shown in the table for later in-service dates, even an in-service date as late as 2002 would still require a subsidy equal to 49% of project costs.

The Committee believes the subsidy would have to be in the form of capital contributions from the Government of Alberta, structured to maximize tax benefit.

It should also be noted that all these estimates are based upon these very important assumptions:

a) the airlines will not reduce fares to retain traffic;

b) it will be possible to run the High Speed Railroad efficiently under modern work rules which would have to be negotiated.

In our assessment, no private developer would be prepared to invest in the railway on the strength of these assumptions and would prudently require increased subsidies beyond the levels so far indicated, to allow for these uncertainties. These additional subsidies might be recovered through profit sharing arrangements if the adverse eventualities (a) and (b) did not materialize, but they would nevertheless necessitate additional government capital appropriations of some hundreds of millions of dollars.

It is possible that currently unforeseen future developments could change this general picture. Conditions might arise under which Edmonton Municipal Airport would be closed and the Airbus traffic either diverted to the International Airport or a replacement found for the Municipal nearer to the downtown area than the International. This would enhance the railroad economics by the value of the savings in time from International to downtown or the cost of the replacement airport. This, however, would still amount to only a fraction of the subsidy which would otherwise be required.

A qualification to this is that ridership is of paramount importance to the economics of the project.(1) Hence, if it were possible to attract riders in greater numbers because of technological advances reducing travel time, the subsidies required would be reduced.

However, on the basis of current commerically operating technology and conditions, we conclude that the project has high costs, and in addition has high risks. Large government subsidies will be required with no readily apparent benefits other than limited and short term high cost employment in the engineering and construction industries.

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(1) Although the strongest sensitivity impact is capital cost, this is in part offset by a higher level of confidence in capital cost estimates than in ridership projections. It should also be noted that capital needs are in the years preceding any revenue. This too tends to over-emphasize the impact of capital costs.

4. TABLES

TABLE 4.1

SUMMARY OF CAPITAL COSTS EXPRESSED IN MILLIONS OF FIRST QUARTER 1986 DOLLARS

Infrastructure and Infrastructure Improvements

	ITEM	COST
1.	Rights-of-Way Fencing	27.0
2.	Grading and Drainage	102.0
3.	Structures (grade separation, bridges)	81.2
4.	Ballast and Sub-ballast	148.5
5.	Ties and Track	144.0
6.	Signals and Communications	50.0
7.	Stations, Traffic Improvements and Parking and Edmonton and Calgary Access	165.0
		717.7
8.	Engineering on Civil Works	64.6
		782.3
9.	Electrification (Including Engineering)	84.7
		867.0
10.	Contingency Allowance for Approximations in Estimate	86.7
		953.7
11.	Management	47.7
12.	Provisional Sum for Discretionary Spending	95.4
13.	Commissioning	12.0
	Sub-Total	1,108.8
	Operating Investment	
1,	Rolling Stock	154.0
2.	Other Operating Capital Requirements	28.0
	Sub-Total	182.0
	TOTAL	$1,290.8

Notes to Table 4.1

a) The basic source of the Infrastructure and Infrastructure Improvements portion of this estimate is a cost estimate resulting from the review of earlier studies, which was commissioned by the Committee.

b) After reviewing the new estimate and its recommendations, the Committee concluded that provision should be made in the estimate for a Calgary terminal station, and a 1500 unit parking structure with access improvements at both Edmonton and Calgary. These additions increase the new estimate from $1,009.4 Million to $1,108.8 Million in 1986 dollars. These estimates compare with an amount of $795.9 Million in 1984, from the Phase III studies.

c) The Committee was advised that there is a possibility that the amount of double track estimated to be required in the Phase III studies could be reduced. This cannot be tested until a systems analysis is completed, and so no adjustment was made for such a possibility.

TABLE 4.2

CAPITAL COST BY YEARS EXPRESSED IN MILLIONS OF CURRENT (AS SPENT) DOLLARS

YEAR	COST	
	Infrastructure & Improvements (3)	Operating Capital Items
1989	404.0	
1990	420.2	
1991	437.0	
1992		165.3 (1)
2004	.	102.5 (2)
Sub-Total	$1,261.2	$267.8
TOTAL	$1,529.0	

(1) Rolling Stock & Maintenance Facilities required for system start-up.

(2) Additional Rolling Stock.

(3) Based upon a design and construction sequence starting now to permit commissioning and start-up in 1992. Interest during construction is included.

TABLE 4.3

SUMMARY OF NET COST/BENEFITS FROM PROVINCIAL PERSPECTIVE (1989-2030)
(all entries are in 1986 dollars,
discounted at 7 percent to 1986)

		$ (Millions)	
A.	Private Evaluation	40	
B.	Social Adjustments		
	Adjustments for		
	1) Provincial Operating Subsidy	-689	
	2) Income Taxes	-39	
	3) Debt transfers	16	
	4) Right-of-Way Transfers	9	
	5) Labour Externality	77	
	6) Equity Outflow	-27	
	Total Social Adjustments	-652	(1)
C.	Induced Incremental Impacts on Transportation Sector		
	1) Net Benefits Lost on Air	-77	
	2) Net Benefits Lost on Bus	-4	
	3) Net Benefits Gained on Auto	5	
	4) Consumer Surplus from Rail	20	
	Total Induced Net Benefits	-56	
	TOTAL	$ -668	

(1) Total differs from the sum of the adjustments because of rounding errors.

TABLE 4.4

COST OF CAPITAL SUBSIDY

IN-SERVICE DATE YEAR-END	1992	1997	2002
Organization & Preliminary Engineering Phase	1987-89	1992-94	1997-99
Engineering	1990	1995	2000
Construction and Commissioning	1990-92	1995-97	2000-02
Capital Subsidy ($ millions) (1)	859	744	623
Capital Subsidy as Percentage of Total Capital Cost	68.0	59.0	49
Subsidy Per Man Year of Employment (2)			
Direct Employment	$62,000	$54,000	$45,000
Direct & Indirect Employment	$31,000	$27,000	$22,500

(1) Actual Subsidy Required

(2) Actual Numbers, Not Present Worth